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Costs and Returns of the Beef Breeding Enterprise in Western Ohio

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Over the years we have seen many changes in numbers of beef cows kept on Ohio farms. Prices of feeder calves and availability of forage, labor and other resources have caused farmers to increase their cow herds during one period and reduce them during another.

During 1957 and 1958 a 3-visit modified cost route survey was made to 102 farmers owning cow herds in 10 central western counties. Generally these enterprises were supplementary in nature. Swine, fat cattle and cash grain were used as the major enterprises. The beef cow herds offer a minimum of competition with these enterprises and utilized feed, pasture, labor, buildings and other resources that would return very little farm income otherwise. Many of these farms have several acres of land unsuited for crop production such as overflow land and rough areas which were used for permanent pasture. The 102 farms included in the study averaged between 550 and 600 acres. Even with the intensive cropping programs found in the area, a considerable acreage of the rotated cropland was in meadows. Some type of forage-consuming livestock was needed to market these meadow crops. Usually labor and buildings were in short supply on the farms. Beef cow herds utilized the resources available and demanded less of those in short supply than other livestock enterprises.

Cost of Producing Beef

Harvested feeds, bedding, interest, insurance and tax for the beef breeding animals together with cash expenditures such as veterinary, market expenses, salt and minerals accounted for 55 percent of the total

Figure 1. Location of the 102 farms with commercial beef breeding enterprises, western Ohio, 1957-1958

production costs. These costs are for items that could have been sold or would not have occurred if the beef breeding enterprise were not on the farm. The remaining 45 percent of the production cost was for pasture, buildings, equipment and labor. On most of the farms visited, little return would have been received from some of these resources if the beef cattle were not on the farm.

For the 5771 cows on the farms in the study, the average total annual cost per cow was $102.34, and the returns from calves transferred to the feedlot, sales, change in inventory and manure credits were $101.51 in the year of study (1957-1958). The average cow returned 83 cents less than the total costs but $44.88 above the value of salable inputs and cash costs. This $44.88 was the return for the use of pasture, gleaning of stalk fields, labor, buildings and equipment.

Table I. Average Annual Costs and Returns from the Beef Breeding Enterprise, 102 Western Ohio Farms, 1957-1958[1/]

Item	Per cow[2/] Amount	Value	Percent of total value
Grain	148 pounds	3.77	3.7
Hay	2576 pounds	24.66	24.1
Silage	2650 pounds	10.90	10.6
Straw	523 pounds	2.54	2.5
Interest, ins. & tax	----	10.97	10.7
Other	----	3.79	3.7
Total salable & cash costs		$56.63	55.3
Pasture	----	$28.84	28.2
Buildings & equipment	----	4.03	3.9
Labor	12.8 hours	12.84	12.6
Total all costs		$102.34	100.0
Calves (weaned value)[3/]	330 pounds	$79.54	78.4
Sales & inv. change	61 pounds	14.16	13.9
Manure credit	6.8 tons	7.81	7.7
Total return		$101.51	100.0
Return above all costs		$ -.83	--
Return above salable & cash costs		$ 44.88	--

1/ October 1, 1957-September 30, 1958.
2/ Total costs and returns of the beef breeding enterprise were divided by the number of females that should have calved.
3/ Average weight of calves at weaning was 432 pounds.

Approximately 2 of every 5 farms received a net return above all costs during the year of study. Practically all farms covered the value of the salable inputs and cash costs with some returns for the use of other resources.

Total costs ($102.34) and returns ($101.51) are those that the average farmer in production during the period of study would experience if his input-output relationships remained unchanged. Each beef breeding enterprise has different cost and net income relationships depending on the time production was started and the availability of resources.

Size of Herd--Related to Costs

Costs per cow were found to average less in large herds than in small herds. Herds of 10-15 cows had more feed, labor, buildings, equipment and cash costs per cow than any other size. Insurance, interest and taxes per cow were similar for all size herds. Harvested feed costs per cow were lower for larger herds but pasture costs were higher. These larger herds were grazed earlier and later in the season and utilized more corn stalk pastures. A small increase in pasture costs per cow offset a much greater value of harvested feeds. Greater efficiencies in labor were found with larger herds. Approximately 30 hours of labor were used per cow in herds less than 15 cows. Labor used for herds of 16 to 25 cows averaged about 20 hours per cow or 10 hours less than the small herd size. The lowest labor requirement was about 11 hours per cow for herds of 76 to 100 cows. Similar cost reductions in the cost of other resources were experienced as the size of herds increased.

The large size group with 101 to 271 cows averaging 169, had slightly higher costs per cow than the next smaller group. Herds of this size could not be operated as a single unit. On some farms they were handled in 2 units and on others in 3 or more units.

Table II. Costs of the Beef Breeding Enterprise by Size of Herd, 102 Western Ohio Farms, 1957-58

Cows per herd	Number of farms	Cows per farm	Annual costs per cow						
			Harvested feed 1/	Value of pasture	Value of labor	Int., ins. and tax	Bldgs. and equip.	Other cash exp's.	Total
10-15	10	12	$57.47	$28.14	$29.08	$12.71	$5.23	$9.50	$142.13
16-25	15	21	56.09	24.16	19.77	13.56	6.02	7.98	127.58
26-50	32	39	54.32	23.32	13.12	10.57	4.02	4.92	110.27
51-75	24	67	41.68	27.56	12.70	11.39	2.78	4.20	100.31
76-100	13	92	36.16	28.65	10.43	10.13	3.07	1.78	90.22
101-271	8	169	35.93	31.72	11.79	10.83	4.71	3.56	98.54
Average	102	57	$41.87	$28.84	$12.84	$10.97	$4.03	$3.79	$102.34

1/ Value of grain, hay, silage and straw.

Costs do not tell the entire story; returns must also be considered. Net incomes per cow were largest for the 51-75 cow herds; however, those ranging from 25 to 271 cows also showed a profit. The 26 to 50 cow size herds had a loss of $2.82 per cow. A number of farms in this group did return a net, and all came close to breaking even.

Gross incomes by size groups ranged from $90 to $107 per cow. The value of calves, sales and changes in inventory were responsible for the variation in returns. Manure credits per cow were slightly higher for small herds than for large herds. The smaller herds were stabled longer with more bedding and harvested feed being used per cow.

Gross income from calves weaned, sales and inventory change ranged from $80 to $100 per cow. Weight the calves attained at weaning time and the time of weaning were 2 major sources of this variation.

Table III. Annual Income and Costs of the Beef Breeding Enterprise by Size of Herd, 102 Western Ohio Farms, 1957-58

Cows per herd	Number of farms	Cows per farm	Annual income per cow: Calves, sales & inventory change 1/	Manure credit	Total	Total cost per cow	Net income per cow
10-15	10	12	$88.42	$9.28	$ 97.70	$142.13	$-44.43
16-25	15	21	98.39	8.78	107.17	127.58	-20.41
26-50	32	39	99.38	8.07	107.45	110.27	- 2.82
51-75	24	67	99.99	7.52	107.51	100.31	+ 7.20
76-100	13	92	81.75	7.74	89.49	90.22	- 0.73
101-271	8	169	91.13	7.60	98.73	98.54	+ 0.19
Average	102	57	$93.70	$7.81	$101.51	$102.34	$- 0.83

1/ Returns from calves were valued at the time of weaning.

Definite advantages of herd size are demonstrated by the increase in net returns. The larger size herds had lower returns but costs were sufficiently reduced that net incomes were close to the break even point. Even the large operations were supplementary in nature. Most of the inputs used by the beef herd had low values or would have returned little to the farm business without the cattle enterprise. On many of these farms, care, feed and buildings for the beef breeding enterprise were not all that might be desired, but they were as good as competition from swine, fat cattle and crop production would permit.

Some herd sizes returned greater profits than others. Only 8 of the 25 smaller herds, ranging from 10-15 cows, returned a net income above all cost. Small herds experienced higher overhead costs per cow. More

labor was required per cow in the smaller herds, resulting in higher cost per cow. The same was true for buildings, equipment and cash cost. For example, about as much time was required to feed a 10-cow herd as a 35-cow herd, but the labor cost of feeding one animal was proportionately greater than when several could be handled at the same time.

Some Factors Related to Profitability

It appears that while the small size herds were at a disadvantage, very large herds also had disadvantages. Much of the advantages of size had been realized by the time a herd had 30 or more cows. The most efficient size, when tested by several factors and net income per cow, proved to be the 51-75 cow herds. Usually a bull could not be utilized efficiently with smaller herds than 25 cows. Large herds averaged 25 cows per bull but the smaller size groups averaged 12 and 19 cows per bull respectively. Frequently as herd size increased above 60 cows, facilities were duplicated. Usually not more than 60 cows were handled as one group.

Calves weaned as a proportion of cows that should have calved averaged 93 percent for 51-75 cow group. The percent of barren cows was lower, and a larger number of cows were settled per bull in the 51-75 cow herd.

Early calves were desirable for the attainment of heavy weights at weaning. However, the high profit group, 51 to 75 cows, had only 63 percent of their calves dropped during the early months of December, January, February and March. Offsetting a somewhat later calving date was a higher percent calf crop and fewer barren cows. The 76 to 100 cow herds produced the lowest calf crop (83 percent).

Table IV. Factors Related to Profitability of the Beef Breeding Enterprise by Size, 102 Western Ohio Farms, 1957-1958

Cows per herd	Percent				Cows per bull	TDN's fed per cow	No. cows per unit
	Calf crop	Barren cows	Early calves 1/	Harvested feed value			
10-15	90	1.2	50	67	12	14.5	12
16-25	87	8.0	64	70	19	16.0	19
26-50	88	5.4	78	70	25	13.2	35
51-75	93	2.8	63	60	28	12.4	52
76-100	83	12.2	74	56	26	12.1	71
101-271	88	7.4	77	53	21	11.4	66

1/ Dropped in December, January, February and March.

Large size herds consumed smaller percentages of harvested feeds than small herds. Cows in the larger herds were on pasture and stalk fields more days, receiving less harvested feeds for shorter periods during the year.

Summary

Beef breeding enterprises were found to be profitable on 47 of the 102 western Ohio farms studied in 1957-1958. These farms, averaging 550 to 600 acres, had large acreages of rotation and permanent forages that would have produced very little income if the beef breeding enterprise had not been on the farm. Most of the farm operations were such that only small amounts of labor, building space and time were available for use by the beef cattle enterprise. On some of these farms the beef cow herd offered the only opportunity to utilize pasture crops being produced on the unit. Other enterprises were the major sources of

income. The beef breeding enterprise produced a satisfactory return and made good use of available resources.

Few of the 102 beef breeding herds included were of the size and intensity to be the major farm enterprise. Only 8 were large enough to provide a family living as single or major enterprise.

Some economies in size were found to exist. Owners of less than 25 cows experienced the greatest difficulty in producing net incomes from their commercial cow herds. Limited resources were most efficiently used by owners of herds ranging from 50-75 cows in size.